



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,794	02/01/2001	Norman G. Anderson	41039	2626

7590

01/12/2005

John C. Robbins
Large Scale Biology Corporation
3333 Vaca Valley Parkway
Suite 1000
Vacaville, CA 95688

EXAMINER

YANG, NELSON C

ART UNIT

PAPER NUMBER

1641

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/774,794	Applicant(s) ANDERSON ET AL.	
	Examiner Nelson Yang	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16,18,22-24 and 81-87 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 82 and 83 is/are allowed.
- 6) ☒ Claim(s) 16,18,22-24,81 and 84-87 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. Applicant's amendment of claims 16, 18, and 23 is acknowledged and has been entered.
2. Applicant's cancellation of claims 1-15, 19-21, and 25-80 is acknowledged and has been entered.
3. Applicant's addition of claims 81-87 is acknowledged and has been entered.
4. Claims 16, 18, 22-24, 81-87 are pending.

Rejections Withdrawn

5. Applicant's arguments, see page 5, filed October 27, 2004, with respect to the rejection of claims 82-83 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claims 82-83 under 35 U.S.C. 112, second paragraph, has been withdrawn.
6. Applicant's arguments, see pgs. 6-10, filed October 27, 2004, with respect to the rejections under 35 U.S.C. 102 and 35 U.S.C. 103(a), have been fully considered and are persuasive. The rejections under 35 U.S.C. 102 and 35 U.S.C. 103(a) have been withdrawn.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. Claims 16, 18, 22-24, and 81 rejected under 35 U.S.C. 102(e) as being anticipated by Borrelli et al [US 6,350,618].

With respect to claims 16, 18, 22-24, and 81, Borrelli et al teach a method of making an array of biological samples comprising the steps of providing a device having a plurality of open

Art Unit: 1641

ended channels extending from an input face to an output face wherein at least along a length, each channel decreases approximately equally in diameter, cross sectional area, and wall thickness; filling a plurality of said channels with a liquid that is capable of hardening under proper conditions, whereby said liquid contains a biological material; allowing said liquid to harden; slicing a section of said device such that said sliced section becomes the array (claim 1); and then bonding the sliced section to a substrate (claim 2). These channels can be a bundle of capillary tubes (column 9, lines 18-28). Each sliced section is 4-10 microns in thickness (claim 5).

8. With respect to claims 86, 87, Borrelli et al further teach that each channel can be filled with a liquid consisting of a different mixture of a particular binding entity and a thermally activated curing polymer such as an epoxy resin (column 16, lines 58-60). Borrelli et al also teach that the contents of the channels need not be limited to biomolecules and may contain reagents, chromatography chemistries, or any other organic or inorganic material that can either polymerize, bond to the channel interior walls, or is capable of being frozen and cut (column 17, lines 50-60).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1641

10. Claims 84, 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borrelli et al [US 6,350,618] in view of Walt et al [US 6,377,721] and further in view of Attridge et al [US 5,478,755].

Borrelli et al teach a method of making an array of biological samples comprising the steps of providing a device having a plurality of open ended channels extending from an input face to an output face wherein at least along a length, each channel decreases approximately equally in diameter, cross sectional area, and wall thickness; filling a plurality of said channels with a liquid that is capable of hardening under proper conditions, whereby said liquid contains a biological material; allowing said liquid to harden; slicing a section of said device such that said sliced section becomes the array (claim 1); and then bonding the sliced section to a substrate (claim 2). These channels can be a bundle of capillary tubes (column 9, lines 18-28). Borrelli et al also teach that the contents of the channels need not be limited to biomolecules and may contain reagents, chromatography chemistries, or any other organic or inorganic material that can either polymerize, bond to the channel interior walls, or is capable of being frozen and cut (column 17, lines 50-60). Borrelli et al do not specifically teach biological cells or microorganisms, however.

Walt et al, however, do teach the use of cells in fiber optic arrays. Walt et al further teach that the characteristics of an entire cell population as a whole can be studied with bulk measurements of sample volumes having a plurality of cells (column 2, lines 32-49). Walt et al further teach that the selectivity of living cells has considerable value and utility in drug screening and analysis of complex biological fluids (column 5, lines 35-55).

Attridge et al further teach that that antibodies can bind antigens to the wall of a capillary cavity (column 6, line 65 – column 7, line 15), where the antigens can be cells (column 7, lines 65-67). Therefore, the method of Borrelli et al can be modified so as to include cells.

Therefore it would have been obvious in the method of Borrelli for the biomolecules to be biological cells, as taught by Walt et al, by modifying the method according to Attridge et al, in order to utilize the selectivity of living cells in drug screening and analysis of complex biological fluids.

Double Patenting

11. Claims 16, 18, 81, 84, 85, are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,713,309. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent recites a method for making an array that encompasses all the steps recited in the instant claims.

12. Claim 22, 24, 85, are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 6, 7 of U.S. Patent No. 6,846,635. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent recites an array that encompasses all the limitations recited in the instant claims.

Allowable Subject Matter

13. Claims 82-83 are allowed.

Art Unit: 1641

The following is an examiner's statement of reasons for allowance: the prior art does not teach an array made from sections of a fiber bundle cut at an angle other than transversely. The resulting array would comprise capillary sections with capillary walls non-perpendicular to the solid support, which also is not found in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

14. Applicant's response to the obviousness-type double patenting rejection that the rejection be delayed until the claims have been indicated otherwise patentable, at which time a terminal disclaimer may be filed, depending on the claim language otherwise allowable is acknowledged.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1641

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson Yang
Patent Examiner
Art Unit 1641


LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

01/10/09